What is claimed is:

1. A complex, comprising:

a liposome;

at least one recombinant soluble MHC-peptide complex, comprising:

a recombinant soluble MHC molecule containing a tag for anchoring the recombinant soluble MHC molecule to the liposome; and

a peptide bound to an antigen binding groove of the recombinant soluble MHC molecule; and

wherein the at least one recombinant soluble MHC-peptide complex is incorporated into the liposome such that the at least one recombinant soluble MHC-peptide complex is available to bind a T cell receptor on a T cell, thereby activating or suppressing the T cell.

2. The complex of claim 1 wherein the recombinant soluble MHC molecule is a Class I MHC molecule or a Class II MHC molecule.

3. The complex of claim 1 further comprising at least one additional signal molecule incorporated in the liposome for manipulating intensity and quality of the T cell response.

4. The complex of claim 1, wherein the at least one recombinant soluble MHC-peptide molecule complex is produced by a method comprising the steps of:

obtaining gDNA encoding a MHC allele;

PCR amplifying the MHC allele utilizing at least one locus-specific primer, wherein coding regions encoding cytoplasmic and transmembrane domains of the MHC allele are not amplified and therefore a PCR product produced from the PCR amplification encodes a truncated, soluble MHC molecule;

inserting the PCR product into a mammalian expression vector to form a construct that encodes the soluble MHC molecule;

introducing the construct into at least one suitable host cell;

culturing the at least one suitable host cell under conditions that allow for expression of the soluble MHC molecule from the construct, wherein the recombinant soluble MHC molecules are folded naturally and are trafficked through the cell in such a way that they are identical in functional properties to a native MHC molecule expressed from the MHC allele and thereby bind peptide ligands in an identical manner as full-length, cell-surface-expressed MHC molecules, such conditions also allowing for endogenous loading of a peptide ligand into the antigen binding groove of each soluble MHC molecule prior to secretion of the soluble MHC molecules from

the cell, thereby producing recombinant soluble MHC-peptide complexes; and

isolating the recombinant soluble MHC-peptide complexes.

5. The complex of claim 4 wherein, in the step of obtaining gDNA which encodes a MHC allele, the gDNA is obtained from blood, saliva, hair, semen, or sweat.

6. The complex of claim 4 wherein, in the step of PCR amplifying the MHC allele, the at least one locus-specific primer is a 3' primer having a stop codon incorporated therein.

7. The complex of claim 4 wherein, in the step of PCR amplifying the MHC allele, the locus-specific primer includes a sequence encoding the tag such that the soluble MHC molecule encoded by the PCR product contains the tag attached thereto that also facilitates in purification of the soluble MHC molecules produced therefrom as well as anchoring the recombinant soluble MHC molecule to the liposome.

8. The complex of claim 7 wherein the tag is a histidine tail.

9. The complex of claim 8 wherein nickel is disposed in the liposome such that the interaction between the nickel and the histidine tail maintains the recombinant soluble MHC molecule in an anchored position on the liposome.

10. The complex of claim 7 wherein the tag is a biotinylation signal peptide.

11. The complex of claim 10 wherein the recombinant soluble MHC molecule containing the biotinylation signal peptide is biotinylated, and streptavidin is disposed in the liposome such that the interaction between biotin and the streptavidin maintains the recombinant soluble MHC molecule in an anchored position on the liposome.

12. The complex of claim 4 wherein, in the step of introducing the construct into at least one suitable host cell, the suitable host cell lacks expression of Class I MHC molecules.

13. The complex of claim 4 wherein, in the step of introducing the construct into at least one suitable host cell, the construct is electroporated into the at least one suitable host cell.

14. The complex of claim 4 wherein, in the step of introducing the construct into at least one suitable host cell, the construct is transfected into the at least one suitable host cell.

15. The complex of claim 4 wherein, in the step of introducing the construct into at least one suitable host cell, the suitable host cell is defective in peptide processing such that peptides are not formed for loading into MHC molecules.

16. The complex of claim 15 wherein the method of producing the at least one recombinant soluble MHC-peptide complex further comprises the step of introducing a construct encoding a desired peptide into the at least one suitable host cell such that the desired peptide expressed by the construct binds to the antigen binding groove of the recombinant soluble MHC molecule, thereby forming the recombinant soluble MHC-peptide complex.

17. The complex of claim 15 wherein the method of producing the at least one recombinant soluble MHC-peptide complex further comprises the step of pulsing the suitable host cell with a desired peptide such that the desired peptide binds to the antigen binding groove of the recombinant soluble MHC molecule, thereby forming the recombinant soluble MHC-peptide complex.

18. A method for forming a complex of a liposome having at least one recombinant soluble MHC-peptide complex incorporated therein, comprising:

obtaining gDNA encoding a MHC allele;

PCR amplifying the MHC allele utilizing at least one locus-specific primer, wherein coding regions encoding cytoplasmic and transmembrane domains of the MHC allele are not amplified and therefore a PCR product produced from the PCR amplification encodes a truncated, soluble MHC molecule;

inserting the PCR product into a mammalian expression vector to form a construct that encodes the soluble MHC molecule;

introducing the construct into at least one suitable host cell;

culturing the at least one suitable host cell under conditions that allow for expression of the soluble MHC molecule from the construct, wherein the recombinant soluble MHC molecules are folded naturally and are trafficked through the cell in such a way that they are identical in functional properties to a native MHC molecule expressed from the MHC allele and thereby bind peptide ligands in an identical manner as full-length, cell-surface-expressed MHC molecules, such conditions also allowing for endogenous loading of a peptide ligand into the antigen binding groove of each soluble MHC molecule prior to secretion of the soluble MHC molecules from

the cell, thereby producing recombinant soluble MHC-peptide complexes;

isolating the recombinant soluble MHC-peptide complexes; and

mixing at least one recombinant soluble MHC-peptide complex with lipids to form a liposome having the at least one recombinant soluble MHC-peptide complex incorporated therein.

19. The method of claim 18 wherein the step of harvesting recombinant soluble MHC-peptide complexes from the cell pharm further comprises identifying and isolating recombinant soluble MHC-peptide complexes that contain a desired peptide.

20. The method of claim 19 wherein, in the step of introducing the construct into at least one suitable host cell, the at least one suitable host cell is infected with at least one of a microorganism, a gene from a microorganism, or a tumor gene.

21. The method of claim 20 wherein the desired peptide distinguishes an infected cell from a noninfected cell.

22. The method of claim 18 wherein, in the step of introducing the construct into at least one suitable host cell, the suitable host cell lacks expression of Class I MHC molecules.

23. The method of claim 18 wherein, in the step of introducing the construct into at least one suitable host cell, the host cell is defective in protein processing such that endogenous peptides are not formed for loading into the soluble MHC molecules.

24. The method of claim 23 further comprising the step of introducing a construct encoding a desired peptide into the at least one suitable host cell such that the desired peptide expressed from the construct binds to the antigen binding groove of the recombinant soluble MHC molecule, thereby forming a recombinant soluble MHC-peptide complex.

25. The method of claim 23 further comprising the step of pulsing the at least one suitable host cell with a desired peptide such that the desired peptide binds to the antigen binding groove of the recombinant soluble MHC molecule, thereby forming a recombinant soluble MHC-peptide complex.

26. The method of claim 18 wherein, in the step of mixing at least one recombinant soluble MHC-peptide complex with lipids to form a liposome having the at least one recombinant soluble MHC-peptide complex incorporated therein, at least one additional signal molecule is mixed with the lipids and the at least one recombinant soluble MHC-peptide complex such that the at least one additional signal molecule is incorporated in the liposome for manipulating the intensity and quality of the T cell response.

27. A method of eliciting a T cell response, comprising:

providing a complex, comprising:

a liposome;

at least one recombinant soluble MHC-peptide complex, comprising:

a recombinant soluble MHC molecule containing a tag for anchoring the recombinant soluble MHC molecule to the liposome; and

a peptide bound to an antigen binding groove of the recombinant soluble MHC molecule; and

wherein the at least one recombinant soluble MHC-peptide complex is incorporated into the liposome such that the at least one recombinant soluble MHC-peptide complex is available to

bind a T cell receptor on a T cell, thereby activating or suppressing the T cell; and

reacting the complex with a T cell such that the T cell receptor on the T cell binds to the at least one recombinant soluble MHC-peptide complex, thereby eliciting a T cell response.

28. The method of claim 27 wherein, in the step of providing a complex, the complex further comprises at least one additional signal molecule incorporated in the liposome for manipulating intensity and quality of the T cell response.

29. A method of vaccinating a subject against a pathogen, comprising:

providing a complex, comprising:

a liposome;

at least one recombinant soluble MHC-peptide complex, comprising:

a recombinant soluble MHC molecule containing a tag for anchoring the recombinant soluble MHC molecule to the liposome; and

a peptide bound to an antigen binding groove of the recombinant soluble MHC molecule, the peptide distinguishing a cell infected with the pathogen from an

uninfected cell; and

wherein the at least one recombinant soluble MHC-peptide complex is incorporated into the liposome such that the at least one recombinant soluble MHC-peptide complex is available to bind a T cell receptor on a T cell, thereby activating the T cell; and

vaccinating a subject with the complex.

30. The method of claim 29 wherein, in the step of providing a complex, the complex further comprises at least one additional signal molecule incorporated in the liposome for manipulating intensity and quality of the T cell response.

31. An artificial antigen presenting cell, comprising:

a spherical molecule having a bilayer;

at least one recombinant soluble MHC-peptide complex, comprising:

a recombinant soluble MHC molecule containing a tag for anchoring the recombinant soluble MHC molecule to the spherical molecule; and

a peptide bound to an antigen binding groove of the recombinant soluble MHC molecule; and

wherein the at least one recombinant soluble MHC-peptide complex is

attached to the spherical molecule via interactions between the tag and the bilayer such that the at least one recombinant soluble MHC-peptide complex is available to bind a T cell receptor on a T cell, thereby activating or suppressing the T cell.